

IN THE CLAIMS

Please make the following claim substitutions:

1. (Currently amended) A method for assigning codes in a CDMA wireless communication system, wherein said codes are spreading codes, and in which a plurality of wireless terminals communicate via a plurality of channels, said method comprising the steps of:
 - 5 estimating propagation characteristics of said plurality of channels; and
 - 6 assigning spreading codes to said plurality of wireless terminals based on
 - 7 said estimated propagation characteristics of said channels.
1. 2. (Previously presented) The method of claim 1 wherein said step of assigning spreading codes comprises the steps of:
 - 3 choosing a target wireless terminal; and
 - 4 assigning a spreading code to said target wireless terminal.
1. 3. (Currently amended) The method of claim 2 wherein said step of assigning a spreading code to a target wireless terminal comprises the step of:
 - 3 performing a random code search to obtain an improved code for said target wireless terminal, wherein said improved code which is an improvement over a current code of said target wireless terminal.
1. 4. (Currently amended) The method of claim 3 wherein said step of performing a random code search comprises the step of randomly searching available codes until ~~an~~ said improved code is found.
1. 5. (Original) The method of claim 3 wherein said step of performing a random code search comprises the step of randomly searching a subset of available codes for the best code in said subset.
1. 6. (Currently amended) The method of claim 3 further comprising the step of:
 - 2 performing a gradient search of codes in ~~the~~ a signal space area
 - 3 surrounding said improved code.

1 7. (Original) The method of claim 3 further comprising the step of:
2 performing a gradient search of transmission delays for said improved
3 code.

1 8. (Currently amended) The method of claim 3 further comprising the steps of:
2 performing a gradient search of codes in ~~the~~ a signal space area
3 surrounding said improved code; and
4 performing a gradient search of transmission delays for said improved
5 code.

1 9. (Original) The method of claim 1 further comprising the steps of:
2 maintaining a processing set of said plurality of wireless terminals;
3 individually assigning codes to said wireless terminals in said processing
4 set; and
5 adding a wireless terminal to said processing set when said step of
6 individually assigning codes to said wireless terminals in said processing set has
7 converged and repeating said step of individually assigning codes.

1 10. (Original) The method of claim 1 further comprising the step of:
2 transmitting said codes to said plurality of wireless terminals.

1 11. (Currently amended) A method for assigning a spreading code to a wireless
2 terminal in a CDMA wireless communication system, wherein said code is a
3 spreading code, comprising the steps of:

4 estimating propagation characteristics of a communication channel of said
5 wireless terminal; and
6 assigning a spreading code to said wireless terminal based on said
7 estimated propagation characteristics of said communication channel.

1 12. (Previously presented) The method of claim 11 wherein said step of
2 assigning a spreading code further comprises the step of:
3 performing a random code search for an improved code relative to a
4 current code assigned to said wireless terminal.

1 13. (Currently amended) The method of claim 12 wherein said step of
2 performing a random code search comprises the step of:
3 searching available codes for ~~an~~ said improved code.

1 14. (Original) The method of claim 12 wherein said step of performing a random
2 code search comprises the step of:
3 searching a subset of available codes for the best code in said subset.

1 15. (Currently amended) The method of claim 12 further comprising the step of:
2 performing a gradient search of codes in ~~the~~ a signal space area
3 surrounding said improved code.

1 16. (Original) The method of claim 12 further comprising the step of:
2 performing a gradient search of transmission delays for said improved
3 code.

1 17. (Currently amended) The method of claim 12 further comprising the steps
2 of:
3 performing a gradient search of codes in ~~the~~ a signal space area
4 surrounding said improved code; and

5 performing a gradient search of transmission delays for said improved
6 code.

1 18. (Currently amended) A method for use in a CDMA wireless communication
2 system comprising the steps of:

3 receiving channel propagation characteristics of a plurality of wireless
4 channels;

5 wherein said channel propagation characteristics comprise the direction of
6 arrival of a path of signal transmission and the propagation delays experienced
7 by said signal transmission; and

8 assigning codes to a plurality of wireless terminals based on said received
9 channel propagation characteristics, wherein said codes are spreading codes.

1 19. (Currently amended) The method of claim 18 wherein said step of assigning
2 spreading codes comprises the steps of:

3 choosing a target wireless terminal; and

4 assigning a said spreading code to said target wireless terminal.

1 20. (Currently amended) The method of claim 19 wherein step of assigning a
2 said spreading code to a target wireless terminal comprises the step of:

3 performing a random code search to obtain an improved code for said
4 target wireless terminal, wherein said improved code which is an improvement
5 over a current code of said target wireless terminal.

1 21. (Currently amended) The method of claim 20 wherein said step of
2 performing a random code search comprises the step of randomly searching
3 available codes until ~~an~~ said improved code is found.

1 22. (Original) The method of claim 20 wherein said step of performing a random
2 code search comprises the step of randomly searching a subset of available
3 codes for the best code in said subset.

1 23. (Currently amended) The method of claim 20 further comprising the step of:
2 performing a gradient search of codes in ~~the~~ a signal space area
3 surrounding said improved code.

1 24. (Original) The method of claim 20 further comprising the step of:
2 performing a gradient search of transmission delays for said improved
3 code.

1 25. (Currently amended) The method of claim 20 further comprising the steps
2 of:

3 performing a gradient search of codes in ~~the~~ a signal space area
4 surrounding said improved code; and

5 performing a gradient search of transmission delays for said improved
6 code.

1 26. (Original) The method of claim 18 further comprising the steps of:
2 maintaining a processing set of said plurality of wireless terminals;
3 individually assigning codes to said wireless terminals in said processing
4 set; and
5 adding a wireless terminal to said processing set when said step of
6 individually assigning codes to said wireless terminals in said processing set has
7 converged and repeating said step of individually assigning codes.

1 27. (Original) The method of claim 18 further comprising the step of:
2 transmitting said codes to said plurality of wireless terminals.

1 28. (Currently amended) Apparatus for communicating with a plurality of
2 wireless terminals via a plurality of channels, said apparatus comprising:
3 a channel estimator for determining channel propagation characteristics;
4 and
5 a code optimizer for assigning spreading codes to said plurality of wireless
6 terminals based on said channel propagation characteristics, wherein said codes
7 are spreading codes.

1 29. (Presently presented) The apparatus of claim 28 wherein said code
2 optimizer comprises:
3 a memory storing computer program instructions;
4 a processor for executing said stored computer program instructions;
5 said computer program instructions defining the steps of:
6 choosing a target wireless terminal; and
7 assigning a spreading code to said target wireless terminal.

1 30. (Currently amended) The apparatus of claim 29 wherein the computer
2 program instructions defining the step of assigning a spreading code to a target
3 wireless terminal further define the step of:

4 performing a random code search to obtain an improved code for said
5 target wireless terminal, wherein said improved code which is an improvement
6 over a current code of said target wireless terminal.

1 31. (Currently amended) The apparatus of claim 30 wherein said computer
2 program instructions defining the step of performing a random code search
3 further define the step of randomly searching available codes until ~~an~~ said
4 improved code is found.

1 32. (Original) The apparatus of claim 30 wherein said computer program
2 instructions defining the step of performing a random code search further define
3 the step of randomly searching a subset of available codes for the best code in
4 said subset.

1 33. (Currently amended) The apparatus of claim 30 wherein said computer
2 program instructions further define the step of:

3 performing a gradient search of codes in ~~the~~ a signal space area
4 surrounding said improved code.

1 34. (Original) The apparatus of claim 30 wherein said computer program
2 instructions further define the step of:

3 performing a gradient search of transmission delays for said improved
4 code.

1 35. (Currently amended) The apparatus of claim 30 wherein said computer
2 program instructions further define the steps of:

3 performing a gradient search of codes in ~~the~~ a signal space area
4 surrounding said improved code; and

5 performing a gradient search of transmission delays for said improved
6 code.

1 36. (Original) The apparatus of claim 28 wherein said computer program
2 instructions further define the steps of:

3 maintaining a processing set of said plurality of wireless terminals;

4 individually assigning codes to said wireless terminals in said processing
5 set; and

6 adding one of said plurality of wireless terminals to said processing set
7 when said step of individually assigning codes to said wireless terminals in said
8 processing set has converged and repeating said step of individually assigning
9 codes.

1 37. (Original) The apparatus of claim 28 wherein said computer program
2 instructions further define the step of:

3 transmitting said codes to said plurality of wireless terminals.

1 38. (Currently amended) Apparatus for communicating with a plurality of
2 wireless terminals via a plurality of channels, said apparatus comprising:

3 means for estimating channel propagation characteristics; and

4 means for assigning spreading codes to said plurality of wireless terminals
5 based on said estimated channel propagation characteristics, wherein said codes
6 are spreading codes.

1 39. (Previously presented) The apparatus of claim 38 wherein said means for
2 assigning codes comprises:

3 means for choosing a target wireless terminal; and

4 means for assigning a spreading code to said target wireless terminal.

1 40. (Currently amended) The apparatus of claim 39 wherein said means for
2 assigning a spreading code to a target wireless terminal comprises:

3 means for performing a random code search to obtain an improved code
4 for said target wireless terminal, wherein said improved code which is an
5 improvement over a current code of said target wireless terminal.

1 41. (Currently amended) The apparatus of claim 40 wherein said means for
2 performing a random code search comprises means for randomly searching
3 available codes until an said improved code is found.

1 42. (Original) The apparatus of claim 40 wherein said means for performing a
2 random code search comprises means for randomly searching a subset of
3 available codes for the best code in said subset.

1 43. (Currently amended) The apparatus of claim 40 further comprising:
2 means for performing a gradient search of codes in ~~the a~~ signal space
3 area surrounding said improved code.

1 44. (Original) The apparatus of claim 40 further comprising:
2 means for performing a gradient search of transmission delays for said
3 improved code.

1 45. (Currently amended) The apparatus of claim 40 further comprising:
2 means for performing a gradient search of codes in ~~the a~~ signal space
3 area surrounding said improved code; and
4 means for performing a gradient search of transmission delays for said
5 improved code.

1 46. (Original) The apparatus of claim 38 further comprising:
2 means for maintaining a processing set of said plurality of wireless
3 terminals;
4 means for individually assigning codes to said wireless terminals in said
5 processing set;
6 means for adding one of said plurality of wireless terminals to said
7 processing set when said step of individually assigning codes to said wireless
8 terminals in said processing set has converged and repeating said step of
9 individually assigning codes.

1 47. (Original) The apparatus of claim 38 further comprising:
2 means for transmitting said codes to said plurality of wireless terminals.